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2015 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons

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Report of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization prepared for the 2015 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons

Introduction

1. The Treaty on the Non-Proliferation of Nuclear Weapons recalls in its preamble the determination of the parties to the 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water to ban all explosive testing of nuclear weapons for all time. However, it was not until 1993 that the General Assembly passed a consensus resolution endorsing a mandate for the negotiations of a comprehensive test-ban treaty at the Conference on Disarmament. Accordingly, the Ad Hoc Committee on a Nuclear Test Ban initiated official negotiations in January 1994. The Comprehensive Nuclear-Test-Ban Treaty was adopted by the General Assembly on 10 September 1996, and was formally opened for signature on 24 September 1996.

2. The preamble of the Comprehensive Nuclear-Test-Ban Treaty states that its objective is "to contribute effectively to the prevention of the proliferation of nuclear weapons in all its aspects" and "to the process of nuclear disarmament". The basic obligations of the Comprehensive Nuclear-Test-Ban Treaty prohibit States parties from carrying out any nuclear weapon test explosion or any other nuclear explosion, whether for a military or any other purpose. The other articles of the Treaty, inter alia, provide for the establishment of the Treaty's implementing organization, elaborate on the global verification regime to monitor compliance with Treaty provisions, and outline measures to redress a situation which contravenes the provisions of the Comprehensive Nuclear-Test-Ban Treaty.

3. In order to enter into force, the Comprehensive Nuclear-Test-Ban Treaty must be ratified by all 44 States listed in Annex 2 to the Treaty. These States formally participated in the 1996 session of the Conference on Disarmament, and possessed nuclear power or research reactors as defined by the International Atomic Energy Agency at the time of negotiations. In advance of the entry into force of the Treaty, a Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization was established by the States signatories on 19 November 1996.

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Comprehensive Nuclear-Test-Ban Treaty and Treaty on the Non-Proliferation of Nuclear Weapons review process

4. The principles and objectives for nuclear non-proliferation and disarmament adopted at the 1995 Treaty on the Non-Proliferation of Nuclear Weapons Review and Extension Conference as part of the package of decisions and resolutions to secure the indefinite extension of the Treaty included the completion by the Conference on Disarmament of the negotiations on a universal and internationally and effectively verifiable Comprehensive Nuclear-Test-Ban Treaty no later than 1996.

5. The outcome of the 2000 Review Conference further underscored the inextricable linkage between the Comprehensive Nuclear-Test-Ban Treaty and the international non-proliferation regime. The Final Document adopted by States Parties to the Treaty on the Non-Proliferation of Nuclear Weapons contained 13 practical steps for the systematic and progressive efforts to implement article VI of the Treaty. Steps 1 and 2 noted the "importance and urgency of signatures and ratifications, without delay and without conditions" in order to achieve the entry into force of the Comprehensive Nuclear-Test-Ban Treaty and a moratorium on nuclear tests pending entry into force of the Treaty.

6. The 2010 Review Conference reaffirmed the vital importance of the entry into force of the Comprehensive Nuclear-Test-Ban Treaty as a core element of the international nuclear disarmament and non-proliferation regime. The outcome document contained 64 actions, in an action plan, which would, in conjunction with the 13 practical steps agreed to in 2000, promote the full, effective and urgent implementation of article VI of the Treaty on the Non-Proliferation of Nuclear Weapons. Five of these actions dealt explicitly with the Comprehensive Nuclear-Test-Ban Treaty. Actions 10 and 11 reiterated the need for nuclear-weapon States to expedite their ratification of the Treaty, and to continue existing nuclear testing moratoria. Actions 12 and 13 recognized the contributions made by the article XIV conferences[1] and called on all ratifying States to promote the entry into force and implementation of the Treaty at all levels. Action 14 encouraged the Preparatory Commission to continue the development and operationalization of the Treaty's verification regime.

7. The urgency of the entry into force of the Comprehensive Nuclear-Test-Ban Treaty has been widely recognized by the international community. This support is evidenced through the widespread high-level attendance at the 2011 and 2013 Conferences on Facilitating the Entry into Force of the Comprehensive Nuclear-Test-Ban Treaty (see paras. 23-25 below), as well as the overwhelming support for resolution 69/81 on the Comprehensive Nuclear-Test-Ban Treaty adopted at the sixty-ninth session of the General Assembly with 179 States voting in favour, 1 against and 3 abstentions.

Preparatory Commission

8. The purpose of the Preparatory Commission established shortly after the Treaty's opening for signature is to carry out the necessary preparations for the

[1] Article XIV Conferences have been held in Vienna (1999, 2003 and 2007) and in New York (2001, 2005, 2009, 2011 and 2013).

effective implementation of the Comprehensive Nuclear-Test-Ban Treaty and prepare for the first session of the Conference of the States Parties to the Treaty. The Commission conducts two main activities: first, to undertake all necessary preparations to ensure that the verification regime foreseen by the Treaty is capable of fulfilling its operational mission at entry into force of the Treaty; secondly, to facilitate ratification processes by States signatories by providing legal and technical information and advice on the Treaty.

9. The Commission consists of two main organs. The first is a plenary body composed of all States signatories (also known as the Preparatory Commission), which is assisted by three groups: a working group on administrative and financial issues (Working Group A), another on verification-related issues (Working Group B), and an advisory group. The second is the Provisional Technical Secretariat, which assists the plenary body in carrying out its activities. The Provisional Technical Secretariat has three technical divisions: the International Monitoring System Division, the International Data Centre Division and the On-Site Inspection Division. These are supported by a Legal and External Relations Division and a Division of Administration. The work of the Commission is conducted under the leadership of its Executive Secretary, and the Commission is financed mainly through assessed contributions by Member States.

10. As of April 2015, the Comprehensive Nuclear-Test-Ban Treaty Organization comprised 256 staff members from 78 countries. The number of staff in the Professional category was 169. The Provisional Technical Secretariat is committed to a policy of equal employment opportunity, aiming in particular at improving the representation of women, which currently account for 34.5 per cent of staff in the Professional category. The approved budget for the organization for 2015 amounts to $38,011,400 and €70,287,200. From 1997 up to and including the financial year 2015, total budgetary resources approved amounted to $1.113 billion and €596.4 million, of which 79.3 per cent has been dedicated to verification-related programmes, including $429.7 million or 24.4 per cent for the Capital Investment Fund for the installation and upgrade of International Monitoring System stations.

Verification regime

11. The Comprehensive Nuclear-Test-Ban Treaty provides for the establishment of a unique global verification regime that consists of the International Monitoring System, a consultation and clarification process, on-site inspections, and confidence-building measures. Data from International Monitoring System stations are sent via a secure global satellite network known as the Global Communications Infrastructure. The data is routed from the satellites to hubs on the ground and then transmitted through terrestrial links to the International Data Centre for processing and analysis. All International Monitoring System data and International Data Centre products are made available to States.

12. Important progress has been made in areas such as the establishment and sustainment of the International Monitoring System, the improvement of International Data Centre processing methods and capabilities, the development of a more integrated and effective approach to the provisional operation and maintenance of the International Monitoring System, and the achievement of greater on-site inspections operational readiness, as demonstrated by the successful conduct

of the on-site inspections Integrated Field Exercise 2014. Finally, training and outreach activities have been pursued strategically through the implementation of integrated capacity-building, which seeks to improve the knowledge and capabilities of station operators, data users and other stakeholders, as well as the general scientific and diplomatic communities, to help further Comprehensive Nuclear-Test-Ban Treaty Organization strategic goals and missions.

International Monitoring System

13. The International Monitoring System is to consist of a network of 321 monitoring stations and 16 radionuclide laboratories. Those facilities collect data used to detect possible nuclear explosions and provide evidence thereof to Member States for verification of compliance with the Treaty. Since 2010, significant progress has been made towards the completion of the International Monitoring System network in all four technologies — seismic, hydroacoustic, infrasound and radionuclide. As of March 2015, 300 International Monitoring System stations have been installed. This represents 89 per cent of the total number of stations envisaged by the Treaty. Of these, 270 stations (84 per cent) and 11 radionuclide laboratories (69 per cent) have been officially certified as meeting the specifications of the Comprehensive Nuclear-Test-Ban Treaty Organization. This is an increase of 25 stations and 1 laboratory since 2010.

International Data Centre

14. The mission of the International Data Centre is to support the verification responsibilities of States by providing products and services necessary for effective global monitoring. Prior to entry into force, its task is to establish and test the facilities that will handle the data from the International Monitoring System stations. In this regard, provisional operation of as many stations as possible is crucial in developing International Data Centre data-processing capabilities pending entry into force of the Treaty. The data collected by the International Monitoring System stations are transmitted via the Global Communications Infrastructure to the International Data Centre and are made available to national data centres. Ensuring data availability and data quality are among the priority issues for the International Data Centre.

On-site inspections

15. On-site inspections are provided for in the Treaty as a final verification measure. The purpose of on-site inspections, which can be invoked only after entry into force, is to clarify whether a nuclear-weapon test or any other nuclear explosion has been carried out in violation of the Treaty and to gather facts, as far as possible, which might assist in identifying any possible violator. Inspections are likely to consist of field activities which would incorporate the use of visual, seismic, geophysical and radionuclide analysis techniques.

16. The Comprehensive Nuclear-Test-Ban Treaty Organization held the on-site inspections Integrated Field Exercise 2014 in Jordan between 3 November and 9 December 2014. There were 364 experts from 53 States signatories who participated in the Integrated Field Exercise 2014, the largest on-site inspections exercise to date. Teams in Austria and Jordan worked under realistic conditions to test all aspects of the on-site inspections regime. Over 150 tonnes of cargo were transported

by sea and air to the inspection area, including both specially designed Comprehensive Nuclear-Test-Ban Treaty Organization airfreight containers and over $10 million in equipment provided by 10 States signatories and the European Union as in-kind contributions. Inspectors conducted 210 field missions and generated 413 gigabytes of data, using 15 of the 17 techniques permitted by the Treaty. Starting from a 1,000-square-kilometre area, the team was able to successfully identify both of the prepared target locations.

Events in the Democratic People's Republic of Korea

17. The Democratic People's Republic of Korea conducted an announced nuclear test on 12 February 2013, the third such event following the 2006 and 2009 announced nuclear tests. The event was automatically detected by 25 International Monitoring System seismic stations, whose data was made available to Member States approximately one hour after its receipt by the International Data Centre — more than 90 minutes before the Democratic People's Republic of Korea publicly announced the test. International Data Centre analysts then worked around the clock to complete the Reviewed Event Bulletin, which used International Monitoring System data from 94 seismic and 2 infrasound stations. The Reviewed Event Bulletin was released at 17:00 (UTC) on 13 February 2013, 31 hours in advance of the Treaty-specified deadline.

18. On 9 and 14 April 2013, the radionuclide station at Takasaki, Japan, detected a significant quantity of the Xe-133 and Xe-131m isotopes of the noble gas Xenon. The ratios of these isotopes were consistent with a fission event occurring approximately 55 days prior to the measurement, which coincides with the 12 February event. The radionuclide station in Ussuriysk, Russia, reported a similar detection at a lower level. Computer modelling performed by the International Data Centre indicated that the Democratic People's Republic of Korea's nuclear test site in Hamgyong Province was a likely point of origin for the detected radionuclides.

19. The improvements in system performance, timeliness and precision between October 2006, May 2009 and February 2013 are demonstrative of the achievements of the Comprehensive Nuclear-Test-Ban Treaty Organization in developing and operationalizing the Comprehensive Nuclear-Test-Ban Treaty verification regime. The system has proven to be a valuable investment by the Member States for ensuring that no nuclear test goes undetected.

Application of the International Monitoring System for purposes beyond verification

20. After the 2011 Great East Japan earthquake and tsunami, the Comprehensive Nuclear-Test-Ban Treaty Organization provided radionuclide data to assist with tracking the movement, dispersion and concentration of the radioactive plume released during the Fukushima Daiichi nuclear power plant accident. This data helped to assuage public concerns about possible health hazards and provided important diagnostic information regarding the state of the reactors.

21. The Comprehensive Nuclear-Test-Ban Treaty Organization actively engages with the scientific community at a variety of forums, including its own biennial Comprehensive Nuclear-Test-Ban Treaty Science and Technology Conference, the next of which will take place from 22 to 26 June 2015. The goals of the Conferences are to enlarge the scientific community engaged in test-ban monitoring, promote the

wider scientific application of data that are used for test-ban verification, and enhance the exchange of knowledge and ideas between the Comprehensive Nuclear-Test-Ban Treaty Organization and the broader scientific community.

Entry into force and universalization

22. Since the 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, significant progress has been made by the Comprehensive Nuclear-Test-Ban Treaty Organization in the implementation of its mandate to facilitate ratification processes. As of March 2015, the Treaty had been signed by 183 States and ratified by 164 States, including 1 signature (Niue) and 13 ratifications since the 2010 Review Conference: Central African Republic, Trinidad and Tobago, Ghana, Guinea, Guatemala, Indonesia, Brunei Darussalam, Chad, Guinea-Bissau, Iraq, Niue, Congo and, more recently on 20 March 2015, Angola. By ratifying the Treaty on 6 February 2012, Indonesia brought the number of ratifying Annex 2 States to 36 out of 44. Member States and the Comprehensive Nuclear-Test-Ban Treaty Organization Secretariat continue to collaborate with a view to facilitating the signature and/or ratification of the remaining States, many of which are close to completing their respective statutory and/or constitutional procedures in this respect.

23. To ensure an innovative and focused approach to advance the ratification of the Comprehensive Nuclear-Test-Ban Treaty by the remaining Annex 2 States, a group comprising eminent personalities and internationally recognized experts was established on 26 September 2013 at United Nations Headquarters in New York. Through their expertise, experience and political standing, the group is tasked with supporting and complementing efforts to promote the Treaty's entry into force as well as reinvigorating international endeavours to achieve this goal.

24. Under article XIV, if the Treaty had not entered into force three years after its opening for signature, a conference of those States that had already ratified it could be held to decide by consensus what measures consistent with international law may be taken to accelerate the ratification process and to facilitate entry into force. States signatories would also be invited to attend the conference. Two such conferences have been convened since the 2010 Review Conference.

25. On 23 September 2011, 100 States signatories, as well as 1 observer State, attended the seventh Conference on Facilitating Entry into Force of the Comprehensive Nuclear-Test-Ban Treaty (Article XIV Conference). On 27 September 2013, the eighth Article XIV Conference was convened with representatives from 88 States signatories, and 1 observer State. During the first plenary meeting of the 2013 Article XIV Conference, a Final Declaration was adopted urging all States which had not done so to sign and/or ratify the Treaty without delay. The declaration included a number of measures to promote the entry into force of the Comprehensive Nuclear-Test-Ban Treaty.

26. In the course of the follow-up to the 2013 Article XIV Conference, and in accordance with paragraph 9 (c) of the Final Declaration, Hungary and Indonesia, which presided over that conference, were selected as coordinators of the process "to promote cooperation, through informal consultations with all interested countries, aimed at promoting further signatures and ratifications". The ninth

Article XIV Conference is scheduled to be held on 29 September 2015 in New York under the co-presidency of Japan and Kazakhstan.

Integrated capacity-building and outreach

27. The Comprehensive Nuclear-Test-Ban Treaty Organization offers Member States training courses and workshops in technologies associated with the International Monitoring System, International Data Centre and on-site inspections and on the political, diplomatic and legal aspects of the Treaty. In some cases, the Comprehensive Nuclear-Test-Ban Treaty Organization provides equipment to national data centres to increase their capacity to participate actively in the verification regime by accessing and analysing International Monitoring System data and International Data Centre products. By enhancing the technical capabilities of Member States, the Comprehensive Nuclear-Test-Ban Treaty Organization empowers all stakeholders to participate in the implementation of the Comprehensive Nuclear-Test-Ban Treaty on an equal footing, while enabling them to benefit from the civil and scientific applications of the Treaty's verification technologies. This programme is funded through the regular budget of the Comprehensive Nuclear-Test-Ban Treaty Organization as well as voluntary contributions. Over the past five years, more than 3,500 individuals — 34.5 per cent of whom were women — benefited from participating in the organization's capacity-building, training and education programme, including representatives from all but 1 Annex 2 State.

28. The purposes of Comprehensive Nuclear-Test-Ban Treaty Organization outreach activities also include promoting signature and ratification of the Treaty, and thereby its universality and entry into force, and enhancing general understanding of the Treaty among government officials, media, civil society and the general public. In promoting the entry into force and universality of the Treaty, the Secretariat has placed emphasis on those States listed in Annex 2 to the Treaty and on those States hosting International Monitoring System facilities.

29. In particular, since 2010, the Comprehensive Nuclear-Test-Ban Treaty Organization held cross-regional conferences in Morocco (2010), Turkey (2011) and Indonesia (2014), a national seminar in Angola (2013), workshops on national implementation measures in Vienna (2011, 2012 and 2013) and scientist-to-scientist workshops in China (2011) and the United States of America (2013). In addition, several information visits for representatives from selected non-ratifying States were held at Comprehensive Nuclear-Test-Ban Treaty Organization headquarters in Vienna.